

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

LIBRARY

OF THE

UNITED STATES
DEPARTMENT OF AGRICULTURE

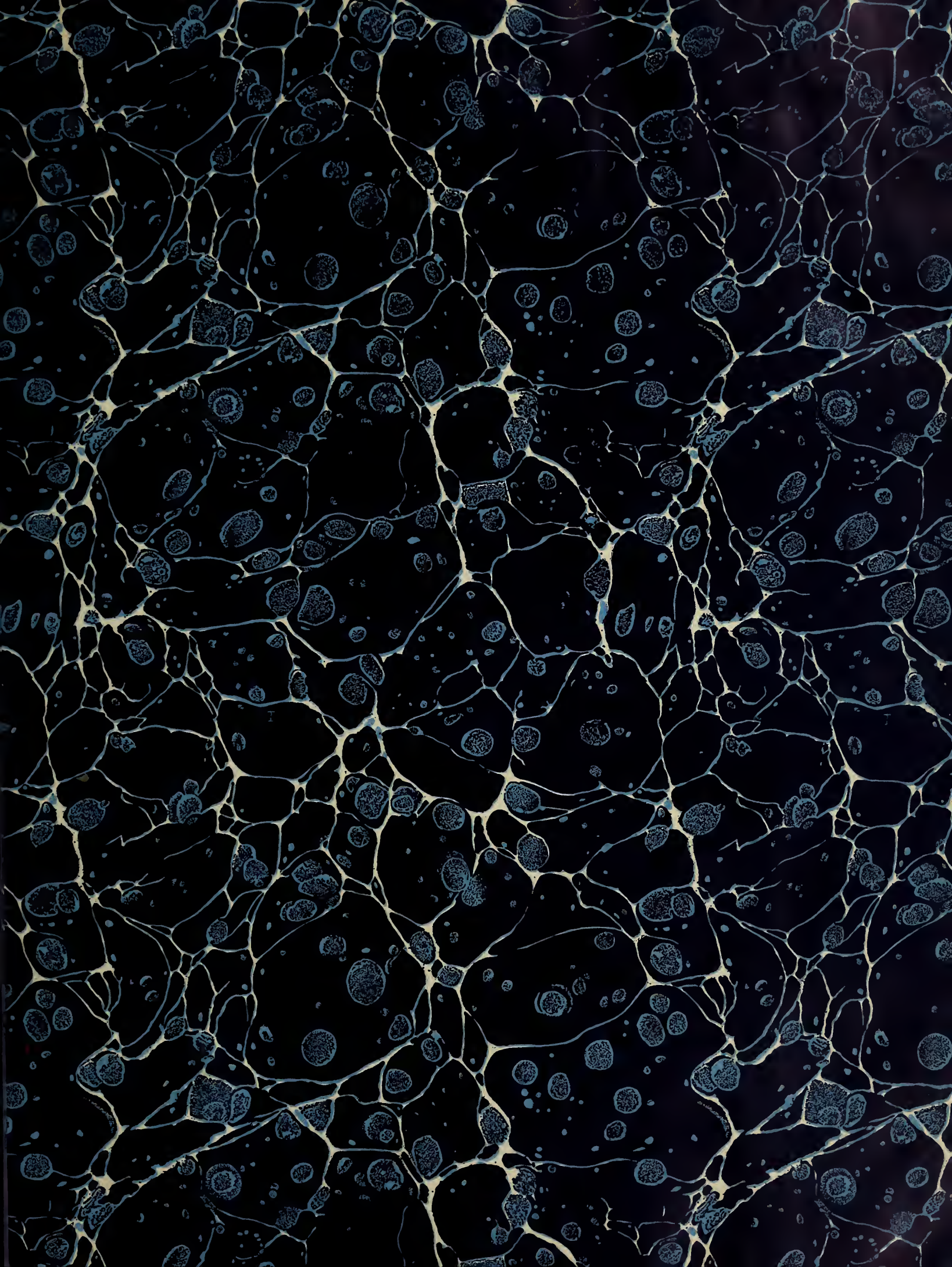
Class 80

Book B46

8-1577

13.

1918/19



BETTER FRUIT

VOLUME XIII

JULY, 1918

NUMBER 1

LIBRARY

RECEIVED

JUL 23 1918

U. S. Department of Agriculture

Special Features in this Edition

ORCHARD IRRIGATION IN THE
PACIFIC NORTHWEST

RELATION OF HORTICULTURE
TO CANNERIES

PRUNING AND POLLENIZING
THE BING CHERRY

WALNUT CULTURE

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, PORTLAND, OREGON

Subscription \$1.00 per Year in the United States; Canada and Foreign, Including Postage, \$1.50.

Single Copy 10 Cents



Bringing the Farm to the Railroad

Since the coming of the motor car, the remote farm is no longer remote. Distance has been conquered. Miles have been shortened. Minutes have taken the place of hours spent in transportation.

In this transformation, the most important advantage to the farmer is in being brought next door to the railroad.

Milk and other perishable products can be marketed quickly. Needed supplies are more available. The farmer is in touch with the world.

Using his car largely for business, the modern farmer treats his car as a business proposition. Equipment is purchased with extreme care and judgment. Values are studied. Mileage records are kept carefully.

That is why the sales of United States Tires are increasing so fast in farming communities. They have demonstrated not only long-mileage qualities but greater reliability. They make your car more useful. They give a bigger return on your investment.

United States Tires are Good Tires

Wherever you live or whatever car you drive, there is a United States Tire built especially to fit your conditions. That is one great benefit in choosing United States Tires. You have a variety of treads and types from which to choose but the quality and values are always United States standards.

Any United States Sales and Service Depot will cheerfully aid you.

For passenger cars—'Usco', 'Chain', 'Royal Cord', 'Nobby' and 'Plain'. Also Tires for Motor Trucks, Motorcycles, Bicycles and Airplanes.

United States Tubes and Tire Accessories Have All the Sterling Worth that Make United States Tires Supreme.

'Usco' 'Chain'



BETTER FRUIT

STATE ASSOCIATE EDITORS

OREGON—C. J. Lewis, Horticulturist, Corvallis.
 WASHINGTON—Dr. A. L. Melander, Entomologist;
 O. M. Morris, Horticulturist; W. S. Thornber, Horticulturist, Pullman.
 COLORADO—C. P. Gillette, Director and Entomologist;
 E. B. House, Chief of Department of Civil and Irrigation Engineering, State Agricultural College, Fort Collins.
 ARIZONA—E. J. Taylor, Horticulturist, Tucson.
 WISCONSIN—Dr. E. D. Ball, Director and Entomologist, Madison.
 MONTANA—O. B. Whipple, Horticulturist, Bozeman.
 CALIFORNIA—C. W. Woodworth, Entomologist, Berkeley; W. H. Velek, Entomologist, Watsonville; Leon D. Batchelor, Horticulturist, Riverside.
 INDIANA—H. S. Jackson, Pathologist, Lafayette.

An Illustrated Magazine Devoted to the Interests
 of Modern, Progressive Fruit Growing
 and Marketing.

PUBLISHED MONTHLY BY

Better Fruit Publishing Company

407 Lumber Exchange

PORTLAND, OREGON

All Communications should be addressed and
 Remittances made payable to

BETTER FRUIT PUBLISHING COMPANY

SUBSCRIPTION PRICE:

In the United States, \$1.00 per year in advance.
 Canada and foreign, including postage, \$1.50.

ADVERTISING RATES ON APPLICATION.

Entered as second-class matter April 22, 1918,
 at the Postoffice at Portland, Oregon, under
 the Act of Congress of March 3, 1879.

VOLUME XIII

PORTLAND, OREGON, JULY 1, 1918

NUMBER 1

Proposed Increase in Freight Rates

BECAUSE of the increased freight rate as announced by Director-General of Railroads William G. McAdoo, the fruit growers of the Pacific Coast are facing a crisis. Several meetings have been held throughout the Northwest and California to protest against this increase in freight and to decide what steps to take to have this new rate to the East altered.

As the East is a long haul from the West, it will mean an increase of 10 to 15 cents per box on our apples, giving Eastern competitors an advantage over us, as it will effect them but 2 to 5 cents per bushel at the most. Already the railroads are getting an increased revenue from the apple men by increasing the number of boxes which are now placed in a car. Such industries as livestock, wool, grain and lumber are paying well—some have increased prices 300 per cent since the beginning of the war, and furthermore on some things the Government is guaranteeing a profit of 10 per cent, whereas apples have about the same values as they did before the war, and growers have had to face an increased cost in production. Fruit must be shipped when ready, and be sold when it reaches market. It is governed by a market condition as governed by the law of supply and demand.

During the period August 15 to December 15, 1917, inclusive, there were shipped out of the Northwest 10,180 cars, containing 8,014,884 boxes of apples, or an average load of 787.7 boxes.

These figures were compiled by the Bureau of Markets, U. S. Department of Agriculture. In Table I is shown the districts from which the above mentioned shipments were made, together with the number of refrigerator cars and number of box cars, with average loads.

When the dollar rate to Eastern territory was established apples were practically a luxury and brought prices that could afford any reasonable rate. The dollar rate was established by the carriers because they undoubtedly thought that that was all the traffic would bear. In order to settle the great Northwest the railroads used the prices at which apples were selling as an inducement to settlers, and a very great portion of the Northwestern apple lands were sold to Eastern people, brought here by the railroads themselves.

The apple industry has grown to such an extent that it is one of the largest revenue producers of the carriers. Special equipment was necessary to transport these apples to market and refrigerator cars were built for that purpose. When the rates were established the character of equipment to be used was taken into consideration, for it costs more to make and keep a refrigerator car in condition than an ordinary box car. When the tariffs establishing the dollar rate were made 30,000 pounds was decided upon as a minimum weight, and the tariffs still show that weight. Apples are accepted at what is known

as an estimated weight of 49½ pounds per box and a minimum car of 30,000 pounds would be 606 boxes. In order to make even tiers in a car, shippers voluntarily loaded 630 boxes to the car, making a weight of 31,185 pounds.

In Table II is shown the earnings of a minimum load, a 630-box load, a 756-box load, the lowest amount the carriers would receive during the winter of 1917-18; the 787-box load, which was the average of the Northwest during the period August 15 to December 15, 1917, and the 822-box load, which was the average load at Hood River during this period.

It will be seen that the apple industry has already been paying the carriers a decided increase over the minimum earnings and in addition has been forced to accept conditions unknown when the dollar rate was placed in effect. Attention has been called to the fact that when the dollar rate was established the character of equipment was taken into consideration, and attention is also directed to the fact that the character of the commodity was also well known. There was always danger of freezing in transit in the winter, and the carriers provided protection, such as round-housing, etc., and where fruit was frozen carriers paid claims for such damage.

About three years ago the carriers adopted what is known as the "Heater Tariff," which provided two options under which apples might be shipped during the period October 15 to April 15, inclusive. Option 1 reads, "Shipper assumes all risks of frost, freezing or heating in transit," while Option 2 reads, "Carrier assumes all risks of frost, freezing or heating in transit." All shipments under Option 2 carried a tariff charge of \$27 per car into dollar rate territory; thus the carriers made a revenue when shipped under Option 2, and refused to accept any risk when shipped under Option 1, this regardless of the fact that the original tariffs on the dollar rate assumed the risks as part of their charge as a common carrier. When the heater tariff went into effect it provided a heater charge under Option 2 as far east as Chicago, but the Eastern lines declined to participate in

TABLE I.

	Refrigerator Cars	Box Cars	Average Load
Wenatchee District	3406 (782.8)	1270 (911.3)	817.7
Yakima District	3309 (720.7)	739 (851.5)	745.7
Hood River District	582 (802.3)	168 (890.2)	822.0
Walla Walla, Lewiston, and Freewater Districts	375 (764.5)	83 (950.7)	798.2
Medford, Grants Pass and Gold Hill	218 (776.1)	30 (876.7)	788.3

TABLE II.

Number of Boxes	Weight	Rate	Amount	Excess Earning
606	30,000	1.00	300.00
630	31,185	1.00	311.85	.0395%
756	37,422	1.00	374.22	.2173%
787	38,971	1.00	389.71	.2990%
822	40,689	1.00	406.89	.3563%

TABLE III.

Commodity	Increase in Value	Present Rate Pacific Northwest to Chicago	Proposed Rate Pacific Northwest to Chicago	Recent Minimum Weight Increase
Lumber	70%	\$.53	\$.58	None
Sheep	300%	1.08	1.15	None
Wool	300%	1.00	1.25	None
Wheat	110%	.50	.56	None
Flour	150%	.57½	.63½	None
Sugar	100%	.60	.75	None
Pears and other soft fruits	None	1.25	1.56¼	8%
Apples	None	1.00	1.25	3½ to 17½%

Continued on page 22



Berger & Carter Company

MANUFACTURERS AND
JOBING DISTRIBUTORS
OF

Equipment and Supplies for the Food Preserving Industries

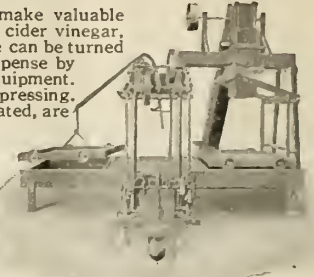
Home Offices:
17th and Mississippi Streets
San Francisco, Cal.

Division Offices: { Los Angeles
Portland
Seattle

Hydraulic Cider Presses

Windfalls, culls and undergrades make valuable food products when made into cider, cider vinegar, apple butter, jelly, etc. Apple waste can be turned into profits with little labor and expense by using improved Mount Gilead equipment. There is big money made in custom pressing. Some, by using the press here illustrated, are clearing \$1200.00 a season.

We build complete cider press outfits in sizes from 10 to 400 bbls. daily. Hand or power. Our cider presses are the result of 40 years specializing. They have taken highest awards at all the big exhibitions. Our catalogs contain valuable information. Copies free on request.



THE HYDRAULIC PRESS MFG. CO., 60 Lincoln Avenue, Mount Gilead, Ohio
WESTERN AGENTS:

The Berger & Carter Co., 17th and Mississippi Sts., San Francisco, Cal.



Insulated with Cabot's Quilt.

Cabot's Insulating "Quilt"

More Efficient than Cork Board

AS PROVED BY THE

United States Government Bureau of Standards Tests

Quilt costs only one-fifth to one-seventh as much as cork board. It is a cushion of dead air spaces. It is thoroughly sanitary—will not get foul or rot, nor harbor insects or vermin. It is fire-resistant, easy to lay and permanent.

Send for sample of Quilt and prices.

SAMUEL CABOT, Inc., Manufacturing Chemists, Boston, Mass.

Northwestern Distributors { S. W. R. DALLY, Seattle
TIMMS, CRESS & CO., Portland
THOMAS G. BUSH & CO., Spokane



Fifty-nine Years

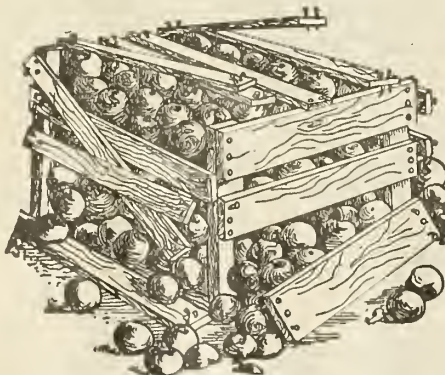
of continuous service to the Northwest is the record of this pioneer bank.

Today, as always, it bears the reputation of being at once conservative and progressive—a wise combination.

We solicit accounts, either personal or business.

Ladd & Tilton Bank

PORTLAND, OREGON



BEFORE using Cement Coated Nails

Western Cement Coated Nails for Western Growers

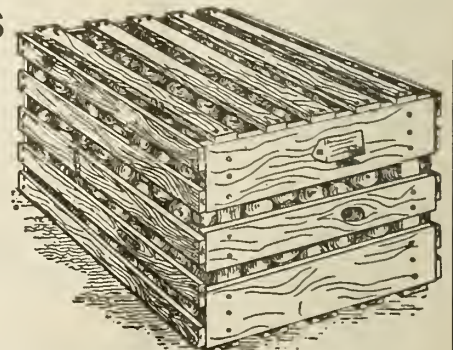
Our Cement Coated Nails are always of uniform length, gauge, head and count. Especially adapted to the manufacture of fruit boxes and crates. In brief, they are the Best on the Market.

Write for Growers' testimonials.

Colorado Fuel & Iron Co.

DENVER, COLORADO

Pacific Coast Sales Offices
Portland, Spokane, San Francisco
Los Angeles



AFTER use of C. F. & I. Co.'s
Cement Coated Nails

Orchard Irrigation Question in the Pacific Northwest

By R. W. Allen, Hermiston, Oregon

[EDITOR'S NOTE—This article was written by Mr. Allen when superintendent of Umatilla Experiment Farm. Mr. Allen is now agriculturist on reclamation projects.]

THE methods and practices involved in the irrigation of orchards in the Pacific Northwest, where a wide range of soil, topographical and climatic conditions exist, are continually undergoing changes and improvements. The destructive and costly system of clean cultivation has at last given way to systematic cropping of orchard soils with legumes which produce profitable crops and are valuable as soil builders. This change in soil treatment created a demand for different methods of irrigation in numerous instances, and forced upon many districts more economical use of irrigation water. These changes all appear to be to the best interest of the fruit industry, as with each change has come better and more economical practices.

There are three phases of the operation of irrigating an orchard properly, all of which directly influence the success of the fruit grower. They involve (1) supplying the trees and fertilizer crop with water in correct amount and at the proper time; (2) handling the water in the manner best suited to the water-holding capacity, slope and character of the soil; and (3) economy in the amount of water used and efficiency of labor involved in irrigating.

When clover and other crops are planted in orchards it must be with a realization that they require a liberal supply of moisture, and provision must be made to supply a sufficient amount to satisfy the needs of the fruit and clover crop. To fail in this results in heavy loss of fruit and unsatisfactory growth of the fertilizer crop.

A common error in irrigating orchards is to make the first application of water too late in the spring. This frequently results in the dropping of much fruit; not infrequently the entire crop falls, soon after it is set. Drouth frequently occurs between irrigations where improper care is exercised. Superficial examination of the soil, or an endeavor to judge from the appearance of the trees when they require water, does not convey a correct understanding of the conditions under which the trees are working. The first practice might result in irrigation being applied prematurely, thus resulting in waste of water and time. The second practice invariably results in a measure of drouth existing before the trees show signs of distress. Ordinarily irrigation should be applied before the soil begins to fall apart after being pressed firmly together in the hand. Its falling apart indicates an insufficient quantity of water present to hold the soil particles together, which in turn indicates a scarcity nearly critical to plant growth. Since trees feed to considerable depth, it is important to know that sufficient moisture is present at all times to the full depth of the roots. It is important to irrigate while the soil is yet moist,

for then it takes up the water more readily and more uniformly than when it becomes dry. The air in a dry soil gives way slowly to the entering water, thus rendering irrigation much slower than if there is moisture present.

Three causes appear to influence the late use of water. Insufficient attention is paid to the condition of the soil to determine when irrigation should be applied. The occurrence of light showers which do not materially influence the amount of soil moisture is often considered proof that irrigation is not necessary. Inadequate facilities for hastening the operation of irrigating frequently results in a portion of the land becoming badly in need of water before it can be reached. This results from beginning too late, or from using too small a head of water. Considerable loss of fruit has occurred from early drouth, and will continue to occur until earlier irrigation is practiced. This is particularly true where small irrigation streams are used. Larger quantities of water run together would permit the work being rushed, whereas it cannot be hurried with a small stream of water.

The time to irrigate varies so much for different types of soil, and the extent of crop growth, that the practice for each orchard or portion of an orchard becomes a problem in itself. Land upon which heavy vegetable growth is taking place can be irrigated later in the fall than under conditions influencing the removal of little moisture from the soil. Trees carrying

heavy crops of fruit should be kept well irrigated up to picking time. They are seldom injured by late irrigation unless it is excessive, as their energy is largely devoted to maturing fruit rather than the growth of branches. When rapid growing trees reach the age at which they should begin fruiting they should be caused to grow slowly, by proper manipulation of the irrigating to influence the formation of fruit buds.

The frequency at which water should be applied to orchard soils depends upon the amount they are capable of storing, the extent of loss by evaporation and the quantity required by the crop. When the capacity of the soil to retain moisture is small, as it is in coarse or shallow areas, the length of time it can maintain normal crop growth is proportionately less than for a soil having greater storage capacity. Orchards on coarse, sandy soil require irrigation at intervals of ten to fifteen days during the active growing season. Those on silt and clay loam soils of adequate depth require two to four irrigations a year. One irrigation in May or June might suffice on very retentive soils, but it is better practice to irrigate oftener and use less water at each irrigation. In this way a more uniform moisture content of the soil is maintained. Where orchards are found to require irrigation at intervals of two, four or six weeks, it is reasonable to expect that they would require irrigation at approximately half this period when two full crops are drawing from



FIGURE 1—(a) Shallow furrows are desirable for row crops and for starting clover or alfalfa. (b) Shallow furrow on left, and comparatively deep furrow on right, showing extent of surface wetting of the soil when water has run for the same time in each.



FIGURE 2—Incomplete distribution of water to the roots of trees. The furrows should be placed evenly over the ground, as all space about trees of this age is occupied by the feeding roots.

the supply. This point is being overlooked at the present time, or is not fully appreciated by many growers, who are placing clover or alfalfa in their orchards. If water is not applied frequently enough, numerous undesirable conditions occur, such as falling of fruit, cessation of growth, which is followed by second growth when irrigation is applied, and weak growth of shade crops. The second growth which frequently occurs on dry trees irrigated during the summer appears late in the fall and causes the ends of the branches, and not infrequently the entire tree, to suffer from freezing in winter.

The fact that numerous orchards are permitted to become in need of moisture between irrigations indicates that fruit growers are frequently unfamiliar with the moisture conditions of the soil, or are neglectful of knowing definitely the conditions under which the trees are working. This condition appears to be more pronounced since clover and other crops have been planted in the orchards than formerly; however, much loss has occurred from drouth in orchards that were considered to have an adequate supply of moisture retained by means of systematic clean cultivation. The proper amount of water to apply depends upon the capacity of the soil to absorb and retain it. It is advisable to apply as much at each irrigation as the soil, to the depth from which the crops are capable of feeding, will hold without loss by drainage. This quantity varies from approximately three inches in depth of water on sandy soil to eight or more inches for silt or clay. The capacity of a soil of any type is influenced by its depth; therefore, the amount of water to apply must be determined by experience for each tract of land.

The method employed for applying water to the soil exerts a decided influence upon the cost and efficiency of irrigating. Whenever possible large heads of water should be used. A great saving in water and labor would result in numerous orchards of the Pacific Northwest if ten to twenty-five times

as much water were used for one-tenth to one-twenty-fifth the time that is now used to do the irrigating.

The time and detail necessary to irrigate by means of furrows can be greatly reduced in the average orchard by using borders, or sloping checks, and flooding the surface. (For an explanation of this method of applying irrigation water see Hood River Experiment Station Circular No. 1, page 7; and Unatilla Experiment Farm Circular No. 3, both of which can be obtained at the Oregon Agricultural College.) The method of applying water is necessarily influenced to a great extent by the size of available irrigation head; however, this can usually be increased to advantage by neighbors using the same stream in rotation instead of each taking a continuous flow. It is also influenced by the character and slope of the land and the cropping system pursued. Moderately sloping land having a covering of clover or alfalfa can be flooded, while clean cultivated land requires furrows ranging from numerous and small for sandy land to deep and few for heavier soils. Steep slopes usually can be irrigated satisfactorily by means of deep contour furrows. Deep furrows are preferable for most clean cultivated soils, as a minimum of surface soil becomes wet while irrigating. (Figure 1.) When furrows are used they should be evenly distributed to insure against irregular wetting of the soil. (Figure 2.)

The conservation of soil moisture is greatly fostered by systematic and thorough cultivation. This is important, whether the land is clean or in such crops as alfalfa. The fertility of the soil has a marked influence upon the water requirements of crops, hence it is important for this reason, as well as that of adequate growth of the crops, to keep the soil in a fertile condition. Not only does the water contained in fertile soils give better results on account of the heavier load of dissolved plant-food materials that it carries, but soils made rich by the use of leguminous crops, or other organic fertilizers, are capable of holding much more water than similar soils in a depleted

condition. To maintain a high state of fertility in the soil as a practice of water economy, and to create a uniform demand for water each year a rotation system of cropping is very essential. Instead of placing clover in the entire orchard at one time, thus creating a heavy demand for water for a few years followed by a slight demand in years that clean culture is practiced, a portion of the orchard should be kept in crops and a portion in clean culture by changing at intervals of two to four years.

Kill "Barley Taste" by Using Cooking Soda

Let the soda keep company with the bread board the next time you make your barley bread, and you won't have the family exclaiming, "Oh, if only barley didn't have that queer taste."

One teaspoon of soda with six cups of flour will counteract that bitter acid taste to which so many persons object, it has been found in experiments made by home economics workers at the University of Wisconsin.

The taste, it is said, varies with the different brands of flours. Most of the flours which are being milled now contain more of the outer coat of the grain than they did last summer, and consequently have a somewhat stronger flavor than the flours used earlier. Adding a small amount of cooking soda to the dough destroys the taste.

The Yakima Valley Fruit Growers' Association has closed its pools for the 1917-18 crop, showing an average of \$1.33 per box to the grower for all kinds, grades and sizes of apples.

Give our boys in the Army and Navy every fighting chance. Pledge yourself to save to the utmost of your ability and to buy War Savings Stamps.

"All the resources of the country are hereby pledged"—now is the time to work them to the limit.

Protect your soldiers with your savings.

WE NEED a first-class packing-house foreman for work on large Colorado fruit ranch, August 15th to November 15th; mostly apples. Must know his business absolutely and be a hustler. Must furnish references.

Box A X, care Better Fruit.

Nice Bright Western Pine FRUIT BOXES AND CRATES

Good standard grades. Well made. Quick shipments. Carloads or less. Get our prices.

Western Pine Box Sales Co.
SPOKANE, WASH

NOW is the time to send to
Milton Nursery Company
MILTON, OREGON
FOR THEIR 1918 CATALOG.
FULL LINE OF NURSERY STOCK.
"Genuineness and Quality"

Scientifically Pruning and Pollenizing the Bing Cherry

By E. Bowles, Prosser, Washington

SEVERAL years ago we were all talking frost protection; and then a few years later the topic was changed to marketing. Now the current has drifted to pruning and pollenizing. That is the reason for the topic chosen for this article—just to be up to date and in fashion with the cherry crowd. The only claim to originality here is in substituting "Bing" for "cherry." That was done to avoid plagiarism; but what is said in the following will generally apply to the other commercial varieties as well as to the Bing.

If you kill a toad your cow will give bloody milk. This bit of boy philosophy is about on a par with the popular notion of pruning a cherry tree. Thirteen years ago I planted ten acres of cherries; and being a college product I was of course somewhat ignorant. I asked scores of people whether to prune cherry trees, and the verdict was almost unanimous against it. I did some pruning from the first, but shared in the general superstition about the dire evils to follow the cutting of a limb. For years the only severe pruning I did was like the horse doctor with his new medicine—on something "as good as dead." To my great surprise nearly every tree, no matter how bad the condition, came out and made a healthy, vigorous tree. To rejuvenate a sick tree is one of the great benefits of pruning the cherry. In these cases I sacrifice form for vigor—cut away half or sometimes three-fourths of the tree, leaving the branches which show best growth of twigs, and disregarding the form, as that will remedy itself when growth begins. Several of our best trees now have at some time "gone light," as the poultryman says of a hen. The pruning, of course, is only a part of the treatment, but the most important special part.

In addition to helping sick trees, I prune for shape of the tree, for vigor and for size of the fruit. A cherry tree will become too tall for profitable handling as a commercial proposition; so they must be kept down to reasonable height. Most trees should be within the reach of a ten or twelve-foot ladder. In case of a full crop, and by keeping hollow centers, a large part of the crop can be picked from the ground and the bulk of it from short ladders or steps. A hollow top and wide-spreading tree is the only form for a cherry. But do not understand that form is a result of pruning alone. Form is dependent as much or more upon the plant food available and upon the room—that is, the side branches and foliage have the full sunlight. The natural shape of a young well-fed Bing tree is not that of a young Bartlett or Rome Beauty, as some have supposed. The spread will keep pace with the height, and the form tend to that of a ball. If the horizontal twigs grow one foot while the top grows two feet, the round form is maintained, making two

feet spread for two in height. Where this proportion is not maintained it is either shortage of available food in the soil or obstruction to the free, full day's sunlight on the side foliage. But this ideal condition does not exist in most cases—semi-starvation for both food and sunlight being the common condition. In these cases, especially the extreme ones, the growth is on the top—merely a stationary base with a story added each year. And these are the cases where the knife must be used severely to overcome the deformity.

The method of pruning must vary greatly from that for the apple. Make as few cuts as possible—cut one large branch rather than a dozen small ones. Often I cut out a six-inch branch; and usually two to four big cuts will cure an old neglected tree. I have done some clipping for several years, but am still somewhat skeptical in regard to it as a general practice—preferring thinning by the heavy cuts and leaving the smaller branches untouched.

Another peculiar rule—cut out the best branch. That sounds silly; but it is this way. A half-starved Bing will often begin to throw its plant food to one big branch, overpowering the other three or four branches which at one time were its equals. If this big branch is cut out at the base—the first fork—the food will distribute well among the remaining branches. If it is clipped and doctored higher up, the trouble is often merely multiplied—a shock of sprouts and continued robbing of the other sections of the tree.

As to time of pruning, that makes little difference. Never clip a branch when the fruit is on, for the purpose of thinning the fruit, as this injures flavor by the removal of foliage on the same branch. Otherwise prune when your saw and work spirit are in good order. Yes, one other exception: clipping immediately after picking forces too much sap into the buds and causes overgrowth in the fall, and sometimes fall blossoms; but removal of whole branches doesn't have this effect so much at that time.

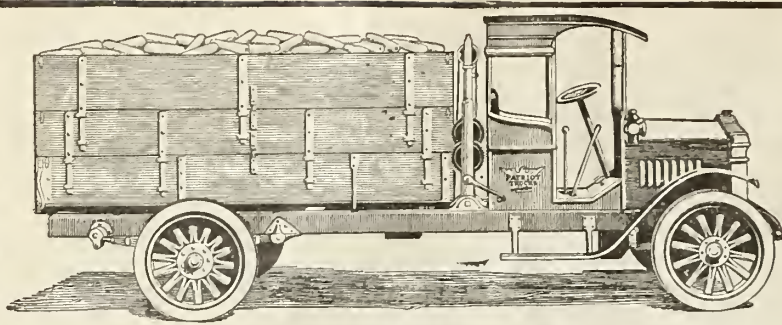
Pollination was not discussed much till the last four or five years, yet no other question is of more importance to the cherry grower. I have heard of no orchard that was planted with any thought on the subject; and the successful orchards are mere accidents by having seedlings or other inferior sorts mixed in. It seems that our three leading varieties—Bings, Lamberts and Royal Anns—do not cross pollenize; and the only way is to have some inferior sorts in the orchard. The first question is: What varieties will fertilize our commercial cherries? Many lists have been named by different authorities—Black Republican, Black Tartarian, Waterhouse, Gov. Wood, also most seedlings. But I do not care what you call your tree, I never use a bud for pollenizing without satisfactory evidence that it is from a tree that has

done successful business. The Waterhouse is often recommended as the best market cherry among the pollenizers.

The Bing is our hardest tree to fertilize, because it blossoms first. Nearly all otherwise good pollenizers come out too late for the best work on the Bing; and in an extremely late spring the Bing sometimes is barren of fruit when standing near a tree that in other years causes a full crop. In a horse race, the longer the time the farther they are apart at the end. The Bing is usually three or four days ahead of the pollenizer; and in a late spring six or eight days. With limited success, I have used artificial means to speed up the pollenizer: A few days before blossoming, sheets around the north side of the tree, fires around them on cool nights and even through the day, covering the ground for midwinter and uncovering for early spring.

In planting an orchard, from five to ten per cent should be pollenizers, and these scattered as evenly over the area as possible, never in rows unless the pollenizers can be made of more commercial importance, and then plant twenty per cent or more of them.

I have tried both grafting and budding into old Bing trees to scatter pollenizers, but much prefer the latter. Last year I put in some two thousand buds, scattering them widely where most needed—got from fifty to eighty per cent where I would have been pleased even with twenty per cent. This method aims to raise the efficiency of the pollen several hundred per cent. A large tree that is wholly a pollenizer is probably much under ten per cent efficiency—that is, the bee is moving nearly all the time from one pollenizing blossom to another instead of crossing to the Bing and back and forth where the work will be effective. I began budding July 25 and worked at it occasionally for a month. In most cases the earlier date is safer, as the sap must be running well. One-year-old wood takes the bud best if the twig is large and vigorous, otherwise two-year-old wood did best. Success requires a thrifty condition of the tree receiving the bud. What I call "artificial pollenizing" is a still shorter course to success, and it is a success in a high degree. I have scattered buckets of "posies" through the orchard, hanging the buckets in the trees where needed. A bucket of warm water filled with twigs not more than two feet long—the blossoms half out when taken—will last two to four days and pay big dividends on the time spent. I have also put larger branches in the water ditches or planted them in the wet ground with success. But at last I struck upon a method I believe more practical on a large scale than any of these. I left the pruning of the pollenizers till the trees were blooming, was ready with tools when the bees came in the morning, then worked like a member of the fire squad cutting



Increasing the Value of the Farm by Bringing it Miles Nearer the Market

The value of a farm depends largely upon its distance from a good market.

Today distance is measured in minutes, not in miles.

The Patriot Farm Truck (Lincoln Model, 1½ tons capacity) readily transports much more in weight with

several times the speed of a horse-drawn wagon. It lays down at market 15,000 to 20,000 pounds in practically the same time that a team will deliver 5,000 pounds, literally bringing the farm to about one-fourth its actual distance from market.

PATRIOT FARM TRUCK

Built for Country Roads—Built for Country Loads

The Patriot is the first motor truck built for farm work, and is equipped with a practical farm body, similar to what you have always used on your farm wagon.

It saves horses and high-priced feed. It brings better markets nearer, for with a Patriot you can readily drive loads to a market fifty or one hundred miles distant.

Business farmers can easily see how such perfect transportation greatly increases the value of their farms, to say nothing of the convenience in being master of roads and weather.

Every farmer with 160 acres or more should find out what a Patriot Farm Truck will save. Write for information.

HEBB MOTORS COMPANY

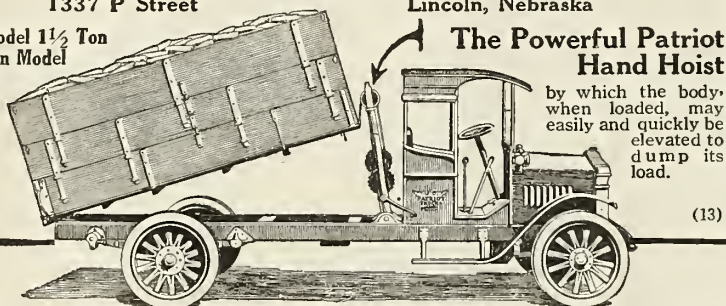
Manufacturers of Patriot Farm Trucks

1337 P Street

Lincoln, Nebraska

Lincoln Model 1½ Ton
Washington Model
2½ Ton

Continental
Motor
Internal
Gear and
Worm
Drive



**The Powerful Patriot
Hand Hoist**

by which the body, when loaded, may easily and quickly be elevated to dump its load.

(13)

large branches by the load and scattering them far and wide among the Bings. These will last several hours—usually as long as the bees are working for one day; for several successive mornings the work was repeated and the same ground covered. One man by this

larger method can get many times the results of the smaller ways, provided there is a large work to do. With a few trees, the bucket method would be best. But of course any artificial means is to be used only till the pollenizers can be grown.

The Underground Stems of Quack-Grass

THE underground stems are the seat of the remarkable vitality of quack-grass; therefore, for a full understanding of this subject the plant in its relations to the underground stems will first be briefly considered. These stems are often called roots. They are not roots in the true sense of the word, but rootstocks, that is, underground stems. The distinction between rootstocks and roots is that rootstocks have buds on them as stems do, while roots do not. Another very important distinction is that rootstocks do not absorb

material from the ground, while roots do. The rootstocks are dependent for their growth upon the material absorbed by the roots and elaborated in the leaves in combination with the material which the leaves draw from the air. This material elaborated in the leaves then goes down to form the underground stems, or rootstocks. The plant is simply storing up material to draw on next year.

As the material for the growth of rootstocks comes from the leaves, the amount of leaf growth which the plant

produces in any one season is largely a measure of the amount of rootstock growth. So, by limiting the development of top in any way the number of underground stems produced is thereby limited. If little or no top is allowed to grow very little rootstock will be developed. Just as we would expect a small crop of potatoes if we were to keep the top of the potato plant cut back close to the earth, so should we expect a minimum of rootstock growth to be produced by the quack-grass plant if its top is kept closely cut. By actual observations, this is found to be true.

The deepest and most vigorous rootstock development of quack-grass is found in cultivated fields. There are several factors which cause this. The principal one is probably deep preparation of the land. When the plant is left undisturbed the rootstocks have a tendency to get nearer the surface every year. Deep plowing puts the stem back to the bottom of the furrow, and a mass of tangled growth is then sent out toward the surface, a large part of the vitality of the buried stems going into new stems reaching toward the surface. This new growth lives until the next year. When the stems are buried deeply to begin with and cultivation is not kept up long enough to kill out the grass (and it usually is not on this type of land), the plant takes on a new lease of life after cultivation stops, the loose deep soil furnishing an ideal place in which to grow. As a consequence, the plant becomes firmly established and is well able to stand the next year's battle.

In midsummer, immediately after haying, there is usually a period of more or less relaxation from general farm work. This is a season of the year also when rootstock grasses seem to be at their lowest state of vitality. The hay crop, too, has been secured from the sod land and nothing more is to be produced the current season on these lands; therefore, no crop is lost. If the work is begun on pasture lands, at least a half season of pasturage has been obtained. It is only on sod and pasture lands that it seems to be advisable to attempt to destroy quack-grass by the method here outlined, as was pointed out in the discussion of the rootstock habits of the grass under varying field conditions.

The process of killing quack-grass on sod or pasture lands, beginning in midsummer, is a very simple one.

The first step is to plow the sod, cutting just under the turf, which is usually about three inches deep. To thoroughly turn over a stiff quack-grass sod as shallow as three inches it is advisable to use a special type of plow (Scotch bottom) having a very long, gradually-sloping moldboard. It has been found that with this type of plow the sod can be turned very shallow. The next step is to go in a week or ten days later with a disk harrow and thoroughly disk the sod. Repeat this treatment every ten days or two weeks until fall, when the quack-grass will be completely killed out.

It sometimes happens that with certain kinds of soil during drier periods in the summer the ground becomes too hard to plow. With the type of plow suggested, however, it has been found that very hard and dry sods can be turned. In case it is not possible to turn the sod on account of dry weather, the treatment can be given with the disk harrow alone. We have been able to thoroughly kill the grass with either the disk or the combination of plow and disk treatment. Where plowing is possible, however, it is usually cheaper to kill the grass with plow and disk than with the disk alone.

If the disk alone is to be used, it should be set practically straight, well weighted with bags of dirt, and the field gone over three or four times. The first two cuttings should be at right angles and the other cuttings diagonally across. The sod in this way is divided into small blocks. Then the disk is set at an angle, when it will be found that the first two or three inches of the sod, which contains practically all of the quack-grass roots, can be cut loose from the soil below. The exposure to the sun and the breaking loose from the lower soil soon kills out the quack-grass. This ground should be gone over at intervals of ten days or two weeks throughout the remainder of the season.

The following spring the infested land, on which the grass has been killed either by the disking method or by the combination of plowing and disking, should be plowed to a good depth in order to bury the mass of dead roots thoroughly. This will facilitate the cultivation of the spring crop. If the work has been carefully done the quack-grass will not show up at all in the spring crop.

There is no closed season for rat-killing.

Save Wheat—Use Substitutes

MEASUREMENTS OF SUBSTITUTES EQUAL TO ONE CUP OF FLOUR.

These weights and measures were tested in the experimental kitchen of the U. S. Food Administration, Home Conservation Division, and of the U. S. Department of Agriculture, Office of Home Economies.

In substituting for one cup of flour use the following measurements. Each is equal in weight to a cup of flour.

Barley	1 $\frac{3}{4}$ cups
Buckwheat	$\frac{7}{8}$ cup
Corn flour	1 cup (seant)
Corn meal (coarse)	$\frac{7}{8}$ cup
Corn meal (fine)	1 cup (seant)
Corn starch	$\frac{3}{4}$ cup
Peanut flour	1 cup (seant)
Potato flour	$\frac{3}{4}$ cup
Rice flour	$\frac{7}{8}$ cup
Roller oats	1 $\frac{1}{2}$ cups
Roller oats (ground in meat chopper)	1 $\frac{1}{4}$ cups
Soy-bean flour	$\frac{7}{8}$ cup
Sweet potato flour	1 $\frac{1}{8}$ cups

This table will help you to make good grid-dle cakes, muffins, cakes, cookies, drop biscuits, and nut or raisin bread without using any wheat flour.

You will not need new recipes. Just use the ones your family has always liked, but for each cup of flour use the amount of substitute given in the table. You can change your muffin recipe like this:

Old Recipe—Two cups wheat flour, 4 teaspoons baking powder, $\frac{1}{4}$ teaspoon salt, 1 tablespoon sugar, 1 cup milk, 1 egg, 1 tablespoon fat.

New Recipe—1 $\frac{3}{8}$ cups barley flour, 1 cup (seant) corn flour, 4 teaspoons baking powder,

Roller oats	} and {	Corn flour
(ground)		or
Barley flour		Rice flour
or		or
Buckwheat flour		Potato flour
or		or
Peanut flour		Sweet potato flour
or		or
Soy-bean flour		Corn meal

GOOD COMBINATIONS OF SUBSTITUTES

You will get better results if you mix two substitutes than if you use just one alone. Some good combinations are—

Roller oats	} and {	Corn flour
(ground)		or
Barley flour		Rice flour
or		or
Buckwheat flour		Potato flour
or		or
Peanut flour		Sweet potato flour
or		or
Soy-bean flour		Corn meal



Made in the west
for western
conditions

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

Western soils, stumps and climate need western explosives. That's why Giant Farm Powders cut the cost of clearing western land. Manufactured for more than half a century especially for the West, they naturally give better results on western farms and orchards.

Giant Farm Powders lead in economy because they go further than ordinary explosives. They break up the stumps thoroughly thereby cutting down labor cost. Money and trouble are saved because of their low freezing qualities.

Warning: If your work is done with any other powder or dynamites, the chances are it will not be done as well as with either of the two Giant brands: Eureka Stumping or Giant Stumping. Look for the Giant trademark on every case, and be sure of the genuine,

How to make the farm pay more money is explained in "Better Farming." This big free book, fully illustrated, will be sent you as soon as we receive this coupon.

THE GIANT POWDER CO., CORP.

"Everything for Blasting"

Home Office: San Francisco

Branch Offices: Denver, Portland,
Salt Lake City, Seattle, Spokane



THE GIANT POWDER CO., CORP., First National Bank Bldg., San Francisco

Send me 52-page illustrated booklet "Better Farming." I am especially interested in (please check) 202

- | | | |
|---|--|---|
| <input type="checkbox"/> Stump Blasting | <input type="checkbox"/> Ditch Blasting | <input type="checkbox"/> Subsoil Blasting |
| <input type="checkbox"/> Boulder Blasting | <input type="checkbox"/> Tree Bed Blasting | <input type="checkbox"/> Road Making |

Name _____

Address _____

$\frac{3}{4}$ teaspoon salt, 1 tablespoon sugar, 1 cup milk, 1 egg, 1 tablespoon fat.

The only difference is the substitution for the wheat flour. Everything else remains the same. You can change all of your recipes in a similar way.

GOOD COMBINATIONS OF SUBSTITUTES

You will get better results if you mix two substitutes than if you use just one alone. Some good combinations are—

Roller oats	} and {	Corn flour
(ground)		or
Barley flour		Rice flour
or		or
Buckwheat flour		Potato flour
or		or
Peanut flour		Sweet potato flour
or		or
Soy-bean flour		Corn meal

CAUTIONS

1. All measurements should be accurate. A standard measuring cup is equal to a half pint.
2. The batter often looks too thick, and sometimes too thin, but you will find that if you have measured as given in the table the result will be good after baking.
3. Bake all substitute mixtures more slowly and longer.
4. Drop biscuits are better than the rolled biscuits, when substitutes are used.
5. Pie crusts often do not roll well and have to be patted in to the pan. They do not need chilling before baking.

They also serve who buy War Savings Stamps—if they save and buy to the utmost of their ability, and buy in time.



We make

Labels

with a purpose



PROPERLY
PLANNED

ARTISTICALLY
EXECUTED

appealing pictures
that attract the
consumer's attention
and remain as a
symbol of your
fruit's quality long
after it is eaten

Send for samples — they tell the story

Main Office
& Factory
2nd & Bryant Sts.
SAN FRANCISCO

Schmidt
LITHO.
CO. YEAR
46th

Branches—
Fresno
Los Angeles
Portland
Seattle
Honolulu

other places where the water table stands high in the winter months it is considered good practice to plant trees that are worked on the American black walnut root. However, where any considerable area of the prospective nut orchard has a high-water table it had better be avoided. It is on plantings on poorly-drained soils that "die-back" is most common. Professor Barss of Oregon Agricultural College, in an address at a recent meeting of the Western Walnut Association, explained that among the causes of "die-back" are wet soils in spring. Wet soils prevent sufficient air from entering the soil, which hinders spring foliation. Proper absorption of water and plant foods will not take place unless there is a certain amount of air in the soil about the roots. In this case water transpires more rapidly from the upper part of the tree than it is absorbed by the roots. The inner parts of the tree get first chance at this water and the tips get what is left, and as a consequence many of them die back because of insufficient water.

Frost is the most important limiting factor to walnut culture in Oregon. Locations subject to late spring and early fall frosts should be avoided. The heavy frost that hit the Willamette Valley in September, 1916, cost those growers who did not have proper air drainage two crops of walnuts. It froze all the nuts on the trees at the time and injured the fruiting buds for the following season to the extent that there was a very light crop in 1917. Other plantings located with due respect to air drainage were uninjured. It is because of the better frost protection of the hills that the bulk of the plantings of the state are there planted. Yamhill County has over 50 per cent of the walnut acreage of the state. Washington, Marion and Polk, next to Yamhill, have the largest plantings. The larger part of the plantings of these counties is in the hills.

Generally speaking any land that is suitable for prunes is suitable for walnuts, provided that the soil is deep. The prune, however, will thrive on more shallow soils and will stand a higher water table. The same points that must be considered in deciding between a valley location and a hill one for prunes must be considered in the case of walnuts. In favor of the valley locations the following points are advanced. The heavier, more retentive and generally richer soils will produce a larger tree with more bearing surface and will grow a tree to a size capable of bearing commercial crops at an earlier age than is possible under hill conditions. The yield per acre, where other conditions are equal, will generally be greater as long as frost does not hit. However, one frost in ten years might more than equalize the increased profits of the heavier bearing lowland trees. It is more difficult to find proper depth of soil in the hills. The soils of these sections are generally less retentive of moisture, and as a consequence the trees are less likely to attain the great size of those valley

English Walnut Industry in the Northwest

By Knight Pearcy, Salem, Oregon

THE United States annually imports between 45,000,000 and 55,000,000 pounds of walnuts. These come from France, Italy and China, largely, the latter country selling us some 7,000,000 pounds of the so-called "Manchurian" walnuts; California produces between 20,000,000 and 30,000,000 annually, all of which is consumed in this country. Oregon produced between 70,000 and 100,000 pounds in 1917. The three Pacific Coast States are the only ones in the United States that can produce the English walnut commercially. California has in bearing some 35,000 acres, with 20,000 non-bearing; Oregon has a total of about 6,000 acres, a small per cent of which is in full bearing. Washington acreage is much smaller than Oregon's.

We are often asked if walnut culture is not still in the experimental in Oregon. There are less than 100 acres over twenty years in age in this region, and yet the performance of this small acreage has been such as to encourage

the planting of some 6,000 additional acres. There can be no doubt that the walnut is here to stay and that the time will come when it will rank in commercial importance with the apple, prune and loganberry. While the walnut is grown successfully in every county in the Willamette Valley and in some, if not all, of the counties of Western Washington, there are nevertheless certain very marked limitations to its culture in these regions. Greater care must be exercised in selecting the site of a walnut grove than is necessary with most other orchards.

The walnut grows to be a very large tree, and to nourish it properly and to anchor it securely its roots must spread far and deep. Hence a fairly deep soil is necessary for the best results. The soil should be retentive of moisture but well drained, for this is a tree that refuses to do well when its feet are wet, especially when it is growing on its own root or that of the California black walnut. In draws and

grown and will not reach a size necessary to bear commercial crops at as early an age as do the latter. While the main point in favor of hill orchards is the freedom from frosts it should be borne in mind that the mere fact of being located in the hills does not necessarily guarantee that there will be an immunity to frost, as there are frosty locations in the hills as well as in the valleys.

The walnut is generally planted with fillers. The Italian prune is the best filler for the Willamette Valley. It thrives on the same types of soil, its fruit can be dried in the same drier that dries the walnut, it forms a comparatively small tree and comes into bearing relatively young, yielding a profit before the nuts begin to bear heavily. Its fruiting season precedes that of the walnut, so that there is no competition for labor between them, and the help can be given continuous work, going from the prune harvest to that of the nuts. The cherry, the pear and the apple make poor fillers. The filbert, however, shows signs of making an ideal filler. It comes into bearing as early as the prune and its crop is harvested and out of the way before the walnut crop is ready, and it endures shade better than most other trees. The filler should be removed as soon as the walnut tree begins to crowd.

On hill soils the nut trees are usually planted on fifty-foot centers on the hexagonal plan, with fillers set between, giving three fillers to every nut tree. On heavier soils sixty feet is none too great a distance. With solid plantings (plantings without fillers) the trees are often planted a little closer together. One of our leading growers spaces his trees at forty-foot intervals. He realizes that at maturity these trees will be too crowded to give maximum returns, but since he does not expect to live forever he figures that he will receive a greater average annual income per acre during his lifetime than he would were he to plant at fifty or sixty feet.

The age at which this tree comes into bearing varies greatly. The variety, the manner of cultivation and pruning and heading and other factors all have a bearing on the time at which a tree will start fruiting. Some trees do not start bearing until ten or twelve years old, while others bear much younger. Grafted trees average younger in coming into fruiting because no tree is considered worthy of propagation unless it has this character of earliness of fruiting.

We know of two orchards, one a grafted one and the other part grafted and part seedling, each of which yielded sixty pounds per acre at seven years of age. Another 25-acre piece of seedlings, when seven, eight and nine years old (it had trees of these three ages) yielded 5,000 pounds, and a year later 6,000 pounds. There were seventeen trees per acre here with no fillers. Another orchard at seventeen years yielded 400 pounds on seven acres, at twenty-one years two tons and at twenty-five years 1,000 pounds per acre. This planting was given poor care for years, but during the last few

years has been well cared for, which care is reflected in the increased yields.

A prominent grower in the Dundee district, which is the leading producing district of the state, estimates that the average production per acre there, with orchards ranging between fifteen and twenty-four years of age, to be about 800 pounds per acre. However, he says that 25 per cent of the trees (it is a seedling district) do not yield enough to pay expenses and should be top worked with scions from good bearing trees. This would bring the average yield up close to 1,000 pounds per acre. These nuts sell ordinarily at from 14 to 17 cents per pound, but the last year the growers there received 20 to 25 cents.

There are no mature grafted orchards in the state, but it seems reasonable to figure that proper varieties of grafted trees should yield somewhat more heavily than these seedling orchards. In California, where both types of trees have been grown alongside for years, the grafted ones have so performed that most of the new plantings being set out are of this type of tree.

The newcomer to the nut game will hear a great deal of conflicting talk regarding the relative merits of the seedling and the grafted orchard. A brief sketch of the history of the English walnut on the west coast of America may be of interest while on this subject. The very first walnuts planted in Western America were of the hard-shell type, small thick-shelled nuts, that were planted in Southern California by the early Mission fathers. In 1867, a Californian, Joseph Sexton by name, purchased a sack of nuts, supposedly from Chile, on the Frisco market and planted them in Southern California. Of the 250 trees that he brought to a bearing age from these nuts, sixty produced nuts of the paper-shelled type, the remainder producing hard shells like the parent nuts. These soft-shell nuts, being so superior to their hard-shell parents, were planted in the nursery. When the resulting seedlings came to bear they were found to produce nuts of all types from hard shell to paper shell. Among these types was one intermediate between the hard shell and the paper shell. It was called the Santa Barbara soft shell. Seedlings grown from these soft-shell seedlings gave rise to the great walnut industry of Southern California.

A great deal of variation was apparent among these seedlings trees, some bearing heavier crops of better nuts than others. Many of the growers planted seed from these superior trees, but while this procedure gave a better average of desirable trees than where the seed was taken indiscriminately in the orchard, yet the variation in the resulting trees was too great and too few of the trees proved to be as good as their parents. Hence some of the better growers began the practice of producing trees by grafting seedlings with scions taken from the best trees in the orchards. In this manner they obtained trees that retained the characters of the parent trees. In this way Placencia Perfection, Prolific, El Monte

Make more Money Pull big stumps by hand



Showing easy lever operation

Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

Works by leverage—same principle as a jack. 100 pound pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

HAND POWER K Stump Puller

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick
Box 664
182 Fifth Street
San Francisco
California

and other largely grown California varieties originated. All of the trees of each of these varieties trace their ancestry back to a single tree which was propagated from because of its superiority over other seedlings. In each case the parent tree was a seedling.

Most of the new plantings in both California and Oregon are of grafted trees. Few well-informed growers are recommending the planting of seedlings. However, the mere fact that one

Continued on page 19

BETTER FRUIT

An Illustrated Magazine Devoted to the Interests
of Modern Fruit Growing and Marketing.
Published Monthly
by

Better Fruit Publishing Company

407 Lumber Exchange
PORTLAND, OREGON

Diversified Horticulture.—Recent developments indicate that the horticulture of the Pacific Northwest is becoming more and more diversified. As an indication, the recent demand for Black Currants for jam purposes and the recent activities of the quartermaster's office of the army in purchasing dried fruits and vegetables indicate a development along diversified lines. The operation in Oregon alone of over thirty canneries and evaporators means that we are producing a great variety of horticulture plants, all of which is indicative of a very wholesome development of our horticulture. We have become world famous because of the excellence of our apples, pears and prunes. We bid fair to become equally as famous because of the excellence of our berries, including strawberries, loganberries, evergreen blackberries, red and black raspberries, red and black currants, also our walnuts, filberts, sweet cherries and a long list of vegetables especially adapted for evaporation and canning. Truly we are rich and our horticulture is bound to ever increase and to become a more and more important factor in our agricultural development.

Fruit Export.—The war has paralyzed to a large extent our export trade of fruit. It is gratifying to know that the Office of Markets in the United States Department of Agriculture has been investigating the Oriental market as a future outlet for our fruits. We shall look eagerly for reports concerning such investigations. The Pacific Slope is very well situated for a development of an export trade not only with the Orient but likewise South America. Every effort should be made at this time to study the South American market and thus be prepared to utilize it at once as soon as the war is over. It will mean much to the apple growers of the Pacific Northwest if direct trade relations would be opened up between such ports as Portland and Seattle and South American ports rather than having to deal direct with New York, as is now the case. Let us ever be on the alert to establish new markets and to strengthen the present outlet for our fruit.

ROAD WORK IS WAR WORK

"Speeding up construction of good roads is an integral part of government war work. Efficient transportation is necessary to reduce the margin between producer and consumer."—U. S. Food Administration.

The United States Department of Agriculture, recognizing the value and importance of fertilizers as factors in the food supply of the nation, urges the fruit growers and farmers to estimate their fertilizer requirements now and place their orders at once. This will enable dealers to combine their orders into full capacity carload lots. Last year many fruit growers were late in ordering spring fertilizers, and did not receive them until after planting time, and some failed to get them at all. There was never a time when the use of fertilizers was so profitable as it is now, with every product of the soil bringing very high prices and also because of the shortage of labor. By using fertilizers intelligently fruit growers can largely increase their crop production. So we urge every fruit grower to place his orders early. The railroads are now being operated by

the United States Government, and by ordering early you will be co-operating with your government. It is also urged that bigger fertilizer bags be used. Burlap is growing scarce because of its increased use in the trenches and because of the shortage of shipping facilities, because the jute from which burlap is made is imported from India. It is therefore necessary that the use of burlap for carrying fertilizers should be cut to the greatest possible extent. Every patriotic fruit grower will gladly co-operate by ordering larger bags.

When you buy War Savings Stamps you do not give your money, you loan it at 4 per cent compounded quarterly. You help your Government, but you help yourself even more.

The Government needs your money; you need the stamps.

Sebastopol Gravensteins

We handle '80% of the famous
Sebastopol Gravenstein Apples
Community packing houses insure uniform pack

Season July 20th to September 1st

SEE OUR REPRESENTATIVE OR WIRE US.

Sebastopol Growers' Union

SEBASTOPOL, CALIFORNIA

Ridley, Houlding & Co.

COVENT GARDEN, LONDON

Points to remember when consigning
apples to the London Market

Specialists in Apples

CABLE ADDRESS: BOTANIZING, LONDON

Solve the Labor Shortage

Labor is very scarce this year. The packer who is going to get the most profit must pack the most fruit in the least amount of time. The Bushel Shipping Basket,



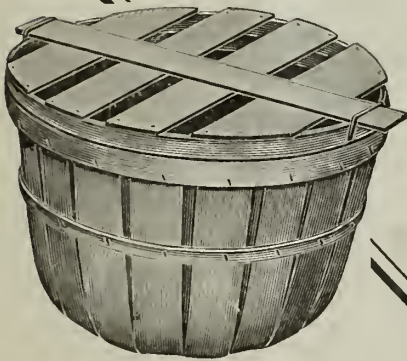
Packing House at Koshkonong, Missouri

The Universal Package

IS THE MOST ECONOMICAL WAY TO PACK
FRUIT, VEGETABLES, ETC.

Write us for prices which will enable you to get
the largest net profit.

Package Sales Corporation
106 East Jefferson St., South Bend, Indiana



The Closer Relation of Horticulture to the Cannery

By A. Rupert, Portland, Oregon

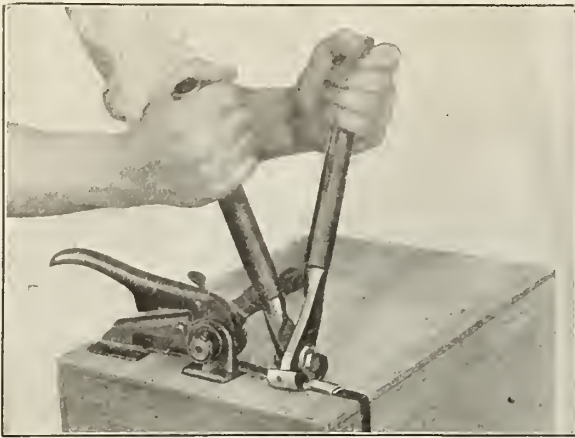
OREGON as a whole is not alive to all the possibilities in the canning business; this, in my opinion, applies to the grower as well as the banker and business man throughout the state, and there is a very good reason for it.

Many years ago, as you know, there were many canneries started by machinery-selling houses who knew nothing of the canning business or what it took to support a cannery. These plants of course were all doomed to failure before they started, and naturally the people became discouraged and became skeptical. The growers, however, being somewhat alive to the situation and knowing they needed something in the way of a plan to work up their products from the farm and give them a permanent market close at hand went ahead and organized a co-operative association, putting in one of their own number to manage the plant, and went out and got a man for processor or superintendent, who probably had slight experience in some capacity

in some particular plant, but in nine cases out of ten was absolutely unfitted to superintend the canning of the product, and usually totally unfitted to handle the machinery in the plant, which is very important. These people without any selling organization or knowledge of the business on either the marketing or canning end were of course doomed to failure, and many a grower who had been enthusiastic in building up something for his own good had to face a heavy loss. Naturally, everybody who had watched these operations again became skeptical and positively indifferent to the canning business as a business in the future. Gradually, however, these institutions discontinued, except those that happened to learn by experience or had people more able to manage than their unfortunate competitors, so that today the canning business is practically in the hands of experienced people knowing the business on both ends, but there are still many things to be desired.

Oregon is undoubtedly the home of the loganberry, which berry as the canned article has had many ups and downs, but I believe it is on the path to success at this time, that is, in a limited way, and there is no doubt but what all the tonnage that will be available in Oregon at the present time will be used for canning, loganberry-juice making and dried loganberries, but there would be a calamity if the loganberries were planted on an unlimited scale, as it would again drug the market the way it did years ago. We are hoping this will not be the case, but a reasonable addition would not be unsafe, and I believe that these additions in a way are being accomplished. We understand there has been quite a little new acreage planted out in 1917 and 1918, and there will probably be quite a little acreage planted this fall or next spring.

Red Raspberries.—The only large acreage of this very much-desired fruit is in Multnomah County, with a small acreage in Lane County, and a few



Used in connection with metal seals consists of encircling a package with a metal strap, drawing the strap very tight and interlocking the overlapping strap-ends within a metal sleeve in such a manner that the joint has a greater tensile strength than the strap itself. Nails, rivets and buckles, with their attendant objections, are entirely eliminated.

Reduce your expenses on lumber by using $\frac{5}{8}$ -inch board where $\frac{3}{4}$ -inch was formerly used and 50% on your freight bills. The result is an even stronger case than you formerly had at about half the cost. *Write for samples.*

MANUFACTURED BY

Acme Steel Goods Co.

Works: 2840 Archer Ave., CHICAGO

Branches and Warehouses:

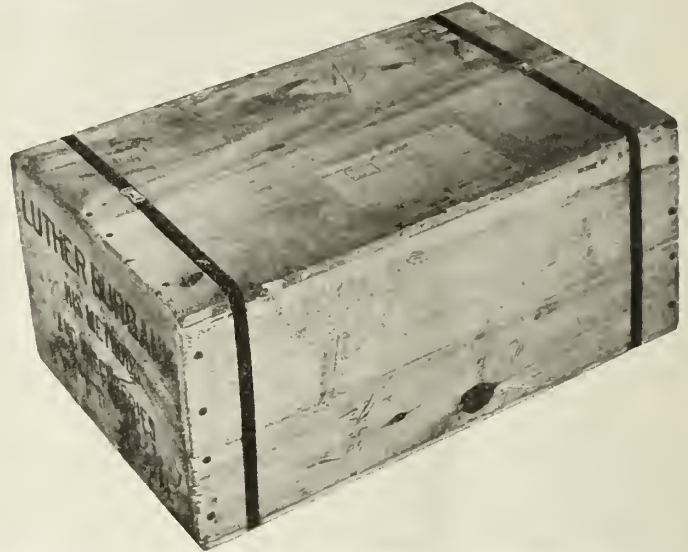
Offices and Warehouse—311 California Street, San Francisco
Warehouses Only { Eyres Storage and Dist. Co., Seattle, Wash.
Holman Transfer Co., Portland, Oregon

Protect Your Fruit

—WITH—

Acme Nailless Steel Strapping

This System is rapidly replacing all other fastening and sealing devices. Its economy and efficiency make certain its universal use by up-to-date shippers, primarily because it effects a Great Saving in Loss and Damage Claims, and it is impossible to open a package without mutilating the Seal or the strapping. In either case, the fact of tampering is immediately evident.



plantings in Yamhill County, in addition to Newberg. These berries could be planted and developed to a very much larger extent in Oregon in localities where soil is suitable for its growth, because we believe that the acreage in Oregon could be doubled with entire safety.

Black Raspberries.—This article is being much more sought after in the Western country on account of the large acreage discontinued in the East, particularly in New York State and Michigan, and some parts of Oregon are well suited for development. There is a large acreage in Yamhill County, but very little anywhere else in the state.

Pears.—Oregon, and particularly the Willamette Valley, is very well suited for the horticulture of Bartlett pears, and quite extensive planting of this fruit would be a big addition to the canning industry, and also believe that they are about as good a crop as a horticulturist could plant.

Royal Anne Cherries.—There is a large acreage of this fruit available throughout the Willamette Valley, The Dalles, Hood River and various parts of Oregon. I believe there is approximately enough of this fruit now in bearing, and coming into bearing, to take care of all the canner's needs.

Strawberries.—The growing of this fruit has been largely discontinued throughout the state on account of various pests that destroy the plants, also on account of low prices prevailing some few years ago. We, however, believe there is money in the straw-

berry business to the growers, providing the right varieties are planted and developed. Of course everything depends on the proper soil for the proper fruit and intelligent advice along this line should be given by the people most interested, namely, the canner.

Our plant at Newberg, namely, the Valley Canning Co., maintains a school for its growers where the growers meet and discuss matters of interest to the grower and horticulturist. This hall was built by the company and dedicated to its growers for this purpose,

and we believe it is one of the best investments the company could possibly make, and I would strongly advocate other companies following the same plan.

Closely related to the fruit business is the vegetable business, in which I believe Oregon excels even more than it does in its fruit, and there are many thousand acres within the State of Oregon of the best vegetable land anywhere in the world. Along the Columbia River, for one hundred miles, is the best vegetable-built land that I know of anywhere in the world, and they are

Look for this SIGN

It means full-powered,
high-quality gasoline,—
every drop! Be sure it's
Red Crown before you fill.

STANDARD OIL COMPANY
(California)



The Gasoline of Quality

largely undeveloped, at least where the development affects the farmer; this must be gotten to in some way. If this could be done it would add enormously to the population of the state, as I do not believe that the East would be able to compete with us on vegetable growing, providing it was put on the proper basis.

Our companies in which we are interested and are selling agents for are now selling all sorts of vegetables everywhere throughout the United States, and we have shipped many vegetables and fruits to foreign countries. For instance, at this time we are making shipment of a small quantity of vegetables to Samarang, Java. There are many places in the world where vegetables such as string beans, carrots, parsnips, turnips, boiled cabbage, sauerkraut cannot be obtained in the fresh state and are not now large users in the canned state, but it can be developed.

Again, it is our opinion that New York State, Michigan and several of the other states that used to be enormous producers of commodities for canning factories are gradually going out of the business, and will keep going out at an enormous rate in the future, and I do not believe they can compete with this country on the growing of berries, neither do I believe that they can compete on the growing of vegetables.

The horticulturist, vegetable gardener and farmer are indispensable to the canner. It must be that these people are on a basis where they can make money else it is true that the canning business would be valueless, and unless the people produce the stuff he cannot operate his plant. We are as much interested in his success as we are in the success of the plant, and we are looking at all times to find crops we can raise that will show us a profit and on which we will be satisfied to produce every year so as to make the business stable and solid. However, a canning business needs a large production; for instance, at our plant at Newberg we could use double the stuff we have in production now, and the same applies to the plant at Eugene. Either of these plants could handle fifty to sixty tons of raw material per day; and it takes an enormous production to keep a plant like that going for a long season.

These plants also represent a large investment and must be kept busy as many days in the year as possible in order to show returns, because it is necessary to handle a wide variety of products covering the season's operation, and anything that BETTER FRUIT can do to stimulate production along the proper line should be very much appreciated by the canners, and we know it would be appreciated by the growers.

FISH!! FISH!!

100 lbs. salmon in brine, shipping weight
165 lbs. \$11.00
Smoked salmon, 20 lbs. net. 3 25
Dried True codfish, 10 lbs. 1 50

Ask for our fresh and cured fish price list.

T. A. BEARD, 4322 Winslow Place, Seattle, Wash.

Pacific Coast Agents
**United States Steel
Products Co.**

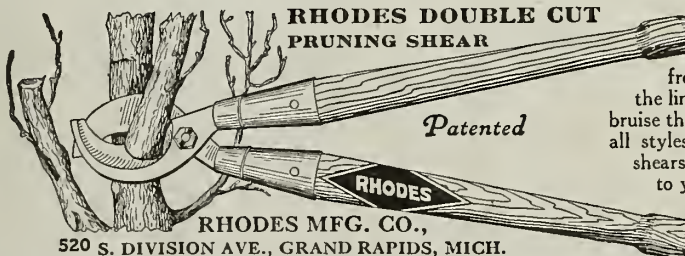
San Francisco
Los Angeles
Portland
Seattle



J.C. Pearson Co., Inc.
Sole Manufacturers

Old South Bldg.
Boston, Mass.

PEARSON
ECONOMY in buying is getting the best value for the money. not always in getting the lowest prices. PEARSON prices are right.
ADHESIVENESS or holding power is the reason for PEARSON nails. For twenty years they have been making boxes strong. Now, more than ever.
RELIABILITY behind the good is added value. You can rely on our record of fulfillment of every contract and fair adjustment of every claim.
SATISFACTION is assured by our long experience in making nails to suit our customers' needs. We know what you want; we guarantee satisfaction.
ORIGINALITY plus experience always excels imitation. Imitation's highest hope is, to sometime (not now) equal Pearson—meantime you play safe.
N A I L S



THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

A Message for Fruit and Vegetable Growers

We desire to get in touch with Fruit and Vegetable Growers in all parts of the country in order to establish Fruit and Vegetable Drying Plants for single firms that want to build new and up-to-date drying plants for themselves and with two or more Growers that would favor the construction of a drying plant on a co-operative basis.

There are many millions of dollars worth of Fruit and Vegetables left to rotten on the ground and many more millions of dollars are paid in freight rates, tin cans and boxes that can and must be saved. We will invest some of our own capital, if you wish, as we are sure that it is to our mutual benefit, if you write us today for particulars. All information on this subject will be given cheerfully and free of charge. If you are in business for making the best profits write now.

The A. A. A. Evaporator Manufacturing Co., Inc.
2371-73 Market Street, San Francisco, California

SIMONS, SHUTTLEWORTH & CO.

LIVERPOOL AND MANCHESTER

SIMONS, JACOBS & CO.
GLASGOWGARCIA, JACOBS & CO.
LONDON

Agencies and Representatives in Every Important European Market

European Receivers of American Fruits

FOR MARKET INFORMATION ADDRESS

SIMONS, SHUTTLEWORTH & FRENCH CO.
204 Franklin Street, New YorkSIMONS FRUIT CO.
Toronto and MontrealSIMONS, SHUTTLEWORTH, WEBLING CO.
46 Clinton Street, Boston

OUR SPECIALTIES ARE APPLES AND PEARS

Return of Peace Means to Apple Industry

By Gordon C. Corbaley, Executive Secretary Seattle Chamber of Commerce and Commercial Club

THE General Manager of the Northwestern Fruit Exchange, Mr. W. F. Gwin, has furnished me with the best answer to the question involved in this article. He says:

"I don't know. All precedents have been swept aside and rendered worthless. We face an entirely new situation, the complexion of which and the exact development of which no man can foresee. We have our opinions of how things are likely to develop, and that is all."

The effect of peace on the apple industry depends largely on the condition of business in the United States. Our Northwest apples are largely sold as a luxury, and are therefore peculiarly liable to business depression and hesitation.

Nobody has any real idea as to what will be the exact condition of business during the first days following the coming of peace. It will be a period of hesitation and uncertainty. That will be because nobody will know what is going to happen. This uncertainty will be particularly marked because about half of the entire productive capacity of the United States will be devoted wholly to war purposes. The release of the billions of money and millions of employes from this war work will naturally make unsettlement.

The period of hesitation and unsettlement is capable of almost any outcome. A great deal depends on the financial condition and the mental condition of the people. They perhaps will be so depressed and worried and seared that capital will run to cover, and we will have a smash.

I, personally, do not think so. I believe that the wide distribution of government bonds will be one of the most valuable influences during these first few months of uncertainty. The return of peace will mean an immediate strengthening of the value of government securities. There will not be a boom in Liberty Bonds, but there will be an appreciable strengthening of value that will put confidence into the many millions of citizens who will have their liquid capital tied up in these securities.

All that we will need as a people to bring us out of this period of uncertainty in an aggressive, forceful frame of mind will be a reasonable measure of encouragement. Once we are no longer in doubt business will go ahead more rapidly than ever, because we will have untold billions of capital available to invest in development in all parts of the war. I refer not only to the capital that has been engaged in war industry, but also to the many billions of capital that we will have stored up in government bonds.

The whole world is on an inflated basis. I think that we are going to

travel on an inflated basis for many years to come. That means high prices for everything, and high prices with plenty of money form the ideal conditions for our fancy-apple market.

I think that Mr. Ford asked me this question with the idea of leading the way to a discussion of foreign markets rather than for the purpose of giving me an opportunity to discuss economies. He knows our tremendous interest in Seattle in foreign trade, and he naturally judges that the foreign market is to become a constantly increasing factor in the distribution of our boxed apples.

The best analysis that I have been able to get of the general foreign situation comes from our old friend, H. M.

Mr. Fruit Grower:

The 1918 apple crop will, in all probability, be the largest yet recorded. Also, there is certain to be the greatest scarcity of labor yet experienced, especially of experienced packers and sorters.

With a **CUTLER FRUIT GRADER** you can teach inexperienced help to pack and sort and handle your crop quickly and at the least cost.

We are giving discounts for early orders and shipments.

WRITE NOW for circular and prices.

CUTLER MANUFACTURING CO.

New Address: 351 East Tenth Street, Portland, Oregon

*The Acme Fruit Picker*

Mr. Fruit Grower: Labor is going to be scarcer than ever this season. **The Acme Fruit Picker** is worth its weight in gold as a labor saver. Works successfully on any tree fruit. Weighs less than three pounds; light and durable; made of the best material obtainable. The picker takes the place of heavy, burdensome stepladders and is so simple of construction that a child can operate it. Guaranteed not to injure the tree in any way, and with the zig-zag delivery chute it is impossible to bruise the fruit.

Price \$6.50 F. O. B. Bellingham, Wn.

If not satisfied money refunded.

Reference, Bellingham National Bank, Bellingham, Wn.

Write for free descriptive circular.

ACME FRUIT PICKER CO., Mullin Hotel, Bellingham, Wn.

Gilbert of the Yakima Valley, who says:

"The world is going to be much more of a family of nations after the war. In rebuilding and reconstructing I look for a very active demand for fruit, as well as for all other food products. There will certainly be a big demand for labor and we shall have good times, I take it, much as they do when a city is rebuilding after a big fire.

"This will be especially important on the Pacific, because Japan and China are now awakened and will want to trade with us more than ever. They will want all the modern improvements of railroads, electric machinery, and the other inventions of the West."

When I spoke of the former foreign market for our apples as having been of little importance, I have in mind no disrespect to our export apple business or the men who are engaged in it. It is true, thus far, we have sent abroad only a small percentage of our fancy apples, say 5. to 10 per cent of the fancy and extra fancy stock, depending on the year. The foreign trade has been nothing but a safely valve to help take the pressure off the domestic markets.

This is not alone true of the apple business. It pretty accurately describes the condition of almost all American exports, except the great staples. As a people, we have used the foreign markets to help have an outlet to make possible the furnishing of a more even supply to the really important markets within the country.

After the war this will be different. The whole world has been brought closer together. The United States has become the financial and industrial center of the world. We have shown ourselves much too big to ever be able to again stay within our own boundaries. We will certainly sell to the rest of the world and buy from the rest of the world in much larger volume and in a much more direct way than we ever have in the past.

Perhaps the greatest single influence in bringing that about will be the new American merchant marine now in process of creation as a wartime necessity.

At the beginning of the war we were forced to depend on the ocean trade channels of other countries. Very little business moved direct from the United States to distant lands, and hardly any ocean transportation was handled by American lines.

Under the war shipbuilding program the United States by the end of 1919 will have as great a tonnage afloat in foreign trade as will Great Britain, and we will surpass Great Britain as a peace sea power, because more than 90 per cent of our tonnage will be government owned and available to be operated for the purpose of developing American trade lines to every corner of the world.

This will present an indeed fortunate situation for us, coming at a time when we will want to do business with every country in the world and every country in the world will want to do business with us.

Now, just what will this mean to the apple business? In general terms, it

ARCADIA

America's Greatest Orchard Project

The home of the big "A" brand of apples.

Winner of first prize at the National Apple Show, 1916,
in shippers' contest.

Only 22 miles from Spokane, Washington
Gravity Irrigation. Healthful Climate
Pleasant Surroundings

Tracts sold on easy monthly payments.
Send for free booklet.

Arcadia Orchards Company

DEER PARK, WASHINGTON



Perforated Tree Protector

that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

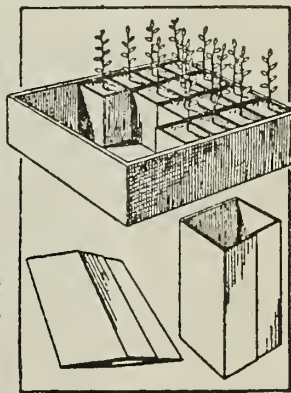
These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

THE EXPAN MFG. CO.

935 East Central Avenue

REDLANDS, CALIFORNIA



W. H. DRYER

W. W. BOLLAM

DRYER, BOLLAM & CO.

GENERAL
COMMISSION MERCHANTS

128 FRONT STREET

Phones: Main 2348
A 2348

PORTLAND, OREGON

Pittsburgh Perfect Cement Coated Nails

are of the highest standard

The Heads don't come off. Given Preference by Largest Pacific Coast Packers

MANUFACTURED EXCLUSIVELY BY
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.

A. C. RULOFSON COMPANY, Pacific Coast Agents
359 Monadnock Building, San Francisco, California

GROWERS!

"Use Your Brains to
Wrap Your Fruit"

STOP! THINK!

"CARO FIBRE"

Fruit Wrappers

LOOKS BEST

PACKS BEST

PICKS UP BEST

"CARO" DON'T TEAR
STRONG DRY STRONG WET

THE BUYER KNOWS "Caro" Prolongs the Life of Fruit

Don't Be Fooled by PRICE. Don't Be Penny Wise

Give Your Fruit a Chance
INSIST on Getting "Caro Fibre"

Your Shipper Can Supply You,
or Write to

Union Waxed & Parchment Paper Co.

F. B. DALLAM, Agent
Santa Maria Building, 112 Market Street
San Francisco, Cal.

The Old Reliable

BELL & CO.

Incorporated

WHOLESALE

Fruits and Produce

112-114 Front Street
PORTLAND, OREGON

True-to-Name Nursery

ESTABLISHED 1902

Offers a general line of nursery stock, with a special offering of Anjou, Bose and Bartlett Pears. These trees are grown with buds personally selected from bearing trees and are guaranteed "true-to-name."

Address all communications to

TRUE-TO-NAME NURSERY
H. S. Galligan, Prop. Hood River, Oregon

Richey & Gilbert Co.

H. M. GILBERT, President and Manager

Growers and Shippers of

Yakima Valley Fruits and Produce

SPECIALTIES:

Apples, Peaches, Pears and Cantaloupes

TOPPENISH, WASHINGTON

will mean an enormous possibility for expansion that will depend in a considerable measure upon our being organized to take advantage of it.

It is difficult to say just what it will mean in terms of business with individual countries. At the present time we have practically no export business. There is plenty of demand for our fruit, but, for various reasons, we cannot get the fruit there to supply the demand. Prosperous England could use any quantity of small red apples and Yellow Newtowns if the English government could be persuaded that our apples are not a luxury and would lift the embargo. The Scandinavian countries and South America are literally crying for apples and offering all sorts of inducements, but there is practically no ship space to be had. Australia, always heretofore a dependable outlet for our early Jonathans, is closed with an embargo.

The individual markets open to our apples in the different countries will depend in a large measure on the conditions in those countries. Personally, I think that nearly all these markets will be favorable.

Europe offers the largest question of doubt, because Europe is so intensely in the middle of the war that nobody knows what it is going to look like when the struggle is over. Personally, I believe that the releasing of men and capital from war occupations and the turning of government finances to the spending of anywhere from ten billion to twenty billion dollars in reconstructing the damaged places will produce a condition of great activity.

One element very much in our favor will be the fact that European orchards have been neglected during the war, and those that have not been entirely destroyed will show a low efficiency in production.

Another pleasant element will be found in Russia. Some day in the not distant future Russia is going to complete its own present occupation of blowing off steam accumulated during years of repression, and will move into a period of expansion and development that will draw much of the money and man power of the world. Russia will be a good market for our apples.

Personally, I look for a tremendous expansion in the Orient and in Australia. We will see a great outpouring of capital and of men to the new places of the world. That has come after every great war. The greatest new places of the world are Siberia, with its billions of acres of untouched resources, and China with its hundreds of millions of undeveloped labor reserves.

Perhaps also in this list should be specifically included Australia, which is due to expand, although not in as great a measure as Siberia and China. Australia, you will remember, is bigger than the United States, and is capable of some expansion and development, even if it does not approach Siberia, which is more than twice as big as the United States.

We of the United States are especially interested in all the development around the Pacific, because Siberia and

China will draw their supplies through the northwestern part of the United States, and Australia is a market in which we have a direct interest. They take our low-colored early Jonathans that are mighty hard to market any place else, and we wish they would have a period of development that would cause them to take many thousands more of them.

As I look at this entire world situation I find that it is impossible for me to be pessimistic. Perhaps I am so constituted that it is not practical for me to be pessimistic very long at any time.

But it is pretty hard for an American citizen to be pessimistic at this time, when the center of the world is swinging to the Western Hemisphere; when we are about to become the old world and when Asia is about to become the new world.

We Americans in this day of change and stress are getting a better understanding of each other, and I believe we are going out collectively to serve the markets of the world.

I believe that the question as to what foreign markets will mean to the boxed-apple business during the days immediately following the war will depend in a very large measure on our ability to organize collectively to develop these foreign markets in a big way.

Big things will have to be done if we are to develop these markets rapidly. Chances will have to be taken and some mistakes will be made. These chances will be much better taken and we will do business much more efficiently if all the big factors in the boxed-apple business will pool their foreign trade into one big export corporation.

That is a lesson that the European nations learned before the war. It is a lesson that the war is teaching to America. The big factors in the apple business of the Northwest will please take notice.

War Savings Stamps save lives.

Biscuit, Using No Wheat

Corn Flour Biscuit.—1 cup liquid, 2½ cups corn flour, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt. Appearance, good; texture, very dry and close, although not heavy; color, white; flavor, slight corn flavor; comment, most nearly the appearance of wheat biscuit of any of the substitutes used.

Suggestion.—If 1¼ cups liquid are used the texture will be better, but it will have to be made as a drop biscuit.

Corn Flour-Rolled Oat Biscuit.—Ground rolled oats 50 per cent, corn flour 50 per cent, 1 cup liquid, 1½ cups corn flour, 1 cup ground oats, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt. Appearance, rough, but appetizing; texture, light; flavor, very good; color, slightly dark—attractive.

Buy a farm in sunny, prosperous

CALIFORNIA

Learn all about land, water, soil, irrigation, crops, fruit markets, poultry, stock, churches and schools, cost of a home. Send 25c for six months subscription to **FARM AND IRRIGATION**, Dept. 8, San Francisco, Calif.



Cooking Convenience

All the convenience of gas—that is the meaning of a New Perfection Oil Cook Stove installed in your kitchen. Easy to operate. A touch of a match and in a jiffy your stove is ready for cooking.

No smoke or smell; no dust or dirt.

More convenient than coal or wood. Better and more economical cooking all the year round. A cool kitchen in summer.

And you have all the convenience of gas.

In 1, 2, 3 and 4 burner sizes, with or without ovens or cabinets. Ask your dealer today.

STANDARD OIL COMPANY
(California)

NEW PERFECTION OIL COOK STOVE

A New Perfection Oil Cook Stove means kitchen comfort and convenience. Ask your friend who has one. Used in 3,000,000 homes. Inexpensive, easy to operate. See them at your dealer's today.

The English Walnut, Etc.

Continued from page 11

buys a grafted tree does not guarantee that he is getting a superior tree. The grafted tree will be superior only in case the tree from which the scions were taken was superior, for it will have the characteristics of the parent tree, whether they are good or bad. The point we wish to make is that a tree is not necessarily a superior one simply because it is a grafted one. A hundred grafted trees may be grown from scions taken from a single tree and the resulting trees will be quite uniform in all respects and will all have the same characteristics as the original tree, but if a hundred seedlings are raised from nuts taken from the same tree the resulting trees will show great variation in every respect. Some of the trees may be the equal of the parent tree, a few may be superior, but a large part of them are certain to be inferior. These inferior trees must be gone over and top worked with scions from good producing trees if the orchard is to be made most profitable.

It has been estimated by excellent authority that among the California seedling groves 25 per cent of the trees do not pay their keep, another 25 per cent just do pay and the remaining 50 per cent make what profit that is made. Arguments in favor of the seedling orchard are several. The initial cost of the trees is less. The question of pollination does not have to be considered as it does in solid plantings of one variety. There is less chance of a single frost nipping the whole crop because of the fact that the wide variation in blossoming time of the seedling will allow a certain per cent of the trees to escape.

The Franquette is the most widely planted variety in the Northwest. It is an old French variety that has been grown in California for nearly half a century. It has been more thoroughly tested out under our conditions than any other variety, and while it is not the ideal nut it is probably the best nut to plant under Western Oregon conditions. Without doubt the leadership of this variety will in time be questioned by other varieties, some of which may now be growing as seedlings and others which may be already named varieties but which have not as yet been well tested out here. Our ideal nut should have the superior quality of the Franquette but should blight a little less, come into bearing a little younger and yield a little heavier, but in the present state of knowledge, we know of no other variety that we would plant in its stead.

The Mayette is perhaps the second in importance of the named varieties grown in Oregon. However, Mayette seems to be more of a type than a variety, as sold by nurserymen at present. There is too much variation, particularly in yield, in the various trees of this variety, although there are some that seem to be of great promise. It will probably not be largely planted until some of the best strains of the

One Quality One Service One Price

"REX quality" as Spray materials win the award of merit whenever tested. Our business is entirely the production of Spray materials.

Yakima Rex Spray Company
Wenatchee Rex Spray Company
Payette Valley Rex Spray Company

type are segregated and are propagated by reliable nurserymen.

The question of pollination is one about which there is practically no accurate information. It is not known for certain which varieties, if any, need the pollen of other varieties in order to set fruit. In planting grafted varieties it is safer to plant more than one variety in the orchard. There is one evidence that the Franquette can be planted in solid blocks safely, but until this is established for a certainty it is a good policy to plant at least ten per cent of some other variety with it. Of course, it is necessary to use for this purpose a variety that sheds its pollen at the time that the pistillate blossoms of the main variety are receptive. Controlled experiments are being carried on in some Oregon orchards this summer that may throw some light on this important subject.

There can be no doubt that a walnut orchard, properly planted in a suitable location and properly handled, is a good investment. It is, at the same time, possible to lose a lot of money by planting in poor locations and by using varieties unsuited to our conditions. The prospective planter should get as wide a variety of advice as possible before planting. Don't bank too much on any one grower's statements nor on the record of any one grove.

Sending Workers to France

The commander of a Western camp who went abroad for a tour of inspection and observation was never known for his enthusiasm about the athletic activities in his camp until he came back from France. Then he announced that until he was retired by the government, play was compulsory for the men in his command, whether the country was at war or peace. What this general saw in France has been described by Dr. Luther H. Gulick, head of the Y. M. C. A. committee on recruiting athletic directors for overseas service.

"The winning of this war is as much in the hands of the athletic and physical directors of the Y. M. C. A.," says Dr. Gulick, "as it is in the hands of any other single group of men except the commanding generals. We have sent overseas recently such men as Dave Fultz of Brown, famous as an athlete in his college days and more recently as an official in important intercollegiate contests; Frank Quimby, known to all Yale men as a successful baseball coach, who left his position at Andover to train regiments; Jack Magee, who brought athletic fame to that famous little Maine college, Bowdoin; Sparrow Robertson, newspaper man and expert in the construction of playgrounds, and scores of others of similar calibre.

"But we are confronted with even greater problems than ever before. Our army in France is expanding rapidly. Those boys over there want as many of the things they had at home as we can give them. More than that, they want relaxation from the strenuous tasks imposed on them.

"When a man has been fighting for days without interruption; has had prac-



PERFECTION IN
FRUIT LABELS
THE SIMPSON & DOELLER CO
1423 - 24
NORTHWESTERN BANK BLDG.
PORTLAND, OREGON.
E. SHELLEY MORGAN
NORTHWESTERN
MANAGER
WE CARRY IN PORTLAND,
STOCK LABELS FOR
APPLES, PEARS,
STRAWBERRIES
& CHERRIES
SEND FOR SAMPLES AND PRICES

APPLES

PEARS

ORANGES

For European Distribution
Boxed Apples and Pears a Specialty

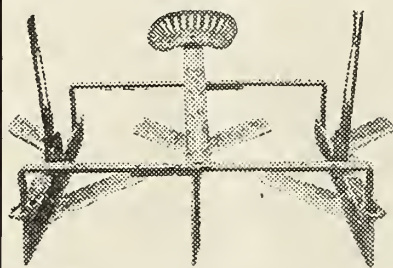
GERALD DA COSTA

100 & 101, Long Acre, Covent Garden, London, W. C. 2, England

Cables: "Geracost, London."

Codes: A. B. C. 5th Edition and Private

Shipping Agents: Lunham & Moore, Produce Exchange, New York



THE GOLDEN GATE WEED CUTTER

Greatest Weed Cutter on the Market Today

Cuts seven feet or less, weighs 230 pounds and is all made of steel. The Golden Gate Weed Cutter is the greatest of its kind on the market. For workmanship, simplicity and durability it cannot be excelled, as it does its work to perfection. Those who are using it say that no money could buy it if they could not get another. It not only cuts all kinds of weeds, but cultivates the ground as well. One user said that it has saved him \$200.00, as he did not have to plow after using.

Write for free descriptive circular and list of testimonials from those who have purchased machines and praise it in every way.

Manufactured by **C. C. SIGURD**

Capital Ave. and McKee Road

San Jose, Cal.

F. W. BALTES AND COMPANY

Printers · Binders



Unexcelled facilities for the production of Catalogues, Booklets, Stationery, Posters and Advertising Matter. Write us for prices and specifications. Out-of-town orders executed promptly and accurately. We print BETTER FRUIT.

CORNER FIRST AND OAK STREETS
PORTLAND, OREGON

When You Buy a Piano it Pays to Buy a Good One

When you buy a Piano it is usually intended to last a lifetime. Therefore special care should be used in its selection.

You should not be guided by cheap prices or special inducements. Pianos, like everything else are priced according to their intrinsic worth. If you do not possess expert knowledge of piano making you must rely greatly on the Piano Dealer. Therefore it is certainly to your interest to go to a dealer who has the reputation of carrying only pianos of merit and true musical worth, who is known to price his pianos consistently, and who has only one price for everybody.

We carry a number of well known makes, each the very best in their grade. Prices of new pianos range from \$300 upward; good "used" pianos from \$125 upward. If desired, we arrange convenient terms of payment.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices

*We are dealers in Steinway and other Pianos,
Pianola Pianos, Aeolian Player Pianos, etc.*

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco
Sixth and Morrison Streets, Portland
Third Avenue, at Pine Street, Seattle
928-30 Broadway, Tacoma
808-10 Sprague Avenue, Spokane

Stores also at Oakland, Sacramento, Stockton, Fresno, San Jose, Santa Rosa, Vallejo

tically no sleep and none too much to eat; has been marching or running, carrying weight, helping to drag guns and the like; he has been doing work which makes football seem like child's play. And he wants to play football, or baseball, or anything that will get his mind away from the terrible scenes which he has witnessed. Under such conditions a man frequently goes wrong. It is natural that he should lose control of himself. The 'Y' is there to see that his relaxation is of the right kind. The physical director, thoroughly trained and with a big personality, can give invaluable service.

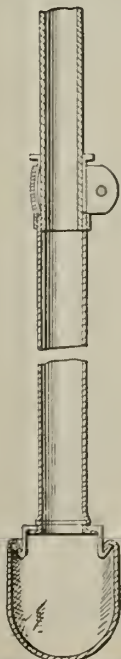
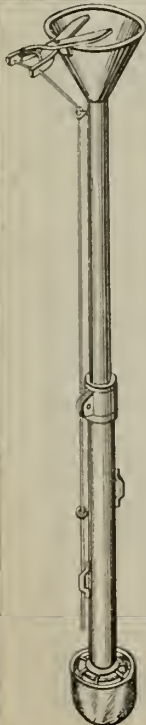
"If we had all the trained men above draft age we still would be short. We must therefore take men of very little training and experience and give them all the training we can in a short, intensive course. Then they go to France to direct mass athletics. The games in which all can take part are those most in demand on the western front. Boxing is a blessing, and baseball is next in popularity. Thousands of bats and balls have been sent overseas, hundreds of mitts and gloves have been worn out, and, strange as it may seem, there is a constant demand for rule books."

Dr. Gulick states that American athletics are becoming tremendously popular in the French armies. President Poincare and Premier Clemenceau of the French republic have urged the Y. M. C. A. to send thirty directors to the French armies in the belief that their work will achieve wonderful results in holding the morale of the poilus who have seen four years of hideous warfare.

Loganberry Culture

By J. P. Aspinwall, Brook, Oregon.

The loganberry is not particular as to soil so long as it is not too flat and standing full of water. The richer and better drained the soil the heavier will be the yield, for it is a good feeder. The soil should be thoroughly prepared before the plants are set out. Plowing in the fall or early winter is best, then re-plow and put in shape in the spring after the ground has dried sufficiently so it will not pack. Be sure and get good plants from a reputable grower, for it is very hard to get plants started after the first year, and a poor start is worse than no start at all. The plants are generally set eight feet apart each way with the rows running north and south, so the sun will get an even chance at each side of the row. Thorough cultivation should be kept up till the vines are too long to permit it any more. It is then a good time to set the posts and put on the wire. The posts are set four hills apart in the row and the end ones are anchored securely. Seven-foot posts are used, set two feet in the ground. Three No. 12 wires are generally used for a trellis, the first one being placed on top of the posts and the other two spaced one and two-thirds of the way to the ground. Some use only two wires where they do not get a good growth of vines, and don't put the top wire quite so high. In October or November the vines are



SANITARY FRUIT PICKER

PICKS

Fruit of all Kinds

Quickly, Cleanly and Efficiently

Don't buy a Step Ladder. Buy one of these FRUIT PICKERS and get all the fruit from the tops of your trees

The Greatest Little Invention of the Age

PRICE \$4.50

Postpaid anywhere in the U. S.

ADDRESS

E. R. STODDART

PATENTEE

MARKESAN, WISCONSIN

trained on the wires and the ground plowed toward them, leaving a dead furrow between the rows for drainage during the winter months. In the spring the land is plowed away from the vines, being careful not to get the last furrow too deep, as that would injure the roots. Level cultivation is practiced during the summer to keep up as much moisture as possible. Keep the green shoots trained or tied in so they will not be injured while cultivating. As soon as the crop is harvested the old canes should be taken out and in September or October the new vines trained onto the wires for the next year's crop.

Proposed Increase, Etc.

Continued from page 3.

the tariff, and naturally protection is only afforded as far as Chicago.

For the past two years the railroads have been unable to furnish sufficient refrigerator cars to handle the apple tonnage, forcing the shippers to use box cars. The carriers refuse to insulate or otherwise protect box cars and also decline to assume any risks in transit, accepting billing only under Option 1 or shipper's risk. During the period August 15 to December 15, 1917, the Northwestern shippers used 2,290 box cars, insulated them at their own expense, in many cases sending messengers along with the shipments, again at their own expense, and paid the regular tariff rates, which contemplated refrigerator cars when the rates were established.

The industry is in a position where it cannot possibly stand another cent of increase. The growers are patriotic, and willing to do everything in their power to win the war, but they believe and know that the money which must be raised by freight increases must be raised from some commodity which can stand an increase—and apples do not come under that head.

The proposed rates are not only confiscatory, but also discriminatory and unjust, as is conclusively sustained by a comparison with rates to be prescribed on other products of this district, as shown in Table III, especially when increased values resulting from the war are considered.

This proposed increase in freight rates will apply to everything the growers use, such as nails, sprays, paper, etc., as in practically every fruit district on the Coast this is controlled in such a manner that the grower pays the freight.

The lumber interests have been well organized and their rate will be increased but 5 cents per hundred, which is probably due to their splendid organization. If it is through lack of organization that the fruit growing industry of the Pacific Coast will practically be crippled, it is time for the fruit growers to wake up and to organize, so as to be able to meet such an emergency.

Buy War Savings Stamps to the utmost of your financial capacity, and then increase your capacity by saving more.

A little thing like being under fire can't stop them from taking a chew of Gravely!



When He Gets that Pouch of Real GRAVELY Chewing Plug You Sent Him

A man's first impulse is to share a good thing. Real Gravely Plug has been spread all over America simply by the Gravely user offering a small chew to his friends. Tobacco like that is worth sending. It means something when it gets there.

Give any man a chew of Real Gravely Plug, and he will tell you that's the kind to send. Send the best!

Ordinary plug is false economy. It costs less per week to chew Real Gravely, because a small chew of it lasts a long while.

If you smoke a pipe, slice Gravely with your knife and add a little to your smoking tobacco. It will give flavor—improve your smoke.

SEND YOUR FRIEND IN THE U. S. SERVICE A POUCH OF GRAVELY

Dealers all around here carry it in 10c. pouches. A 3c. stamp will put it into his hands in any Training Camp or Seaport of the U. S. A. Even "over there" a 3c. stamp will take it to him. Your dealer will supply envelope and give you official directions how to address it.

P. B. GRAVELY TOBACCO CO., Danville, Va.

*The Patent Pouch keeps it Fresh and Clean and Good
—it is not Real Gravely without this Protection Seal*

Established 1831



The Choice of Those Who Know

Manufacturers and leading motor car distributors recommend ZEROLENE. The majority of motorists use ZEROLENE. ZEROLENE reduces wear and gives more power because it keeps its lubricating body at cylinder heat. Gives less carbon because, being refined from selected California asphalt-base crude, it burns clean and goes out with exhaust.

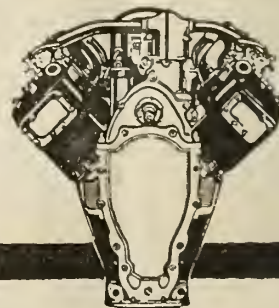
ZEROLENE is the correct oil for all types of automobile engines. It is the correct oil for your automobile. Get our lubrication chart showing the correct consistency for your car.

At dealers everywhere and
Standard Oil Service Stations.
STANDARD OIL COMPANY
(California)

ZEROLENE
The Standard Oil for Motor Cars

Correct Lubrication for the "V"-Type Engine

This, the "V"-Type of automobile engine, like all internal combustion engines, requires an oil that holds its lubricating qualities at cylinder heat, burns clean in the combustion chambers and goes out with exhaust. Zerolene fills these requirements perfectly, because it is correctly refined from selected California asphalt-base crude.



Gravity

VOLUNTEERS ITS SERVICES



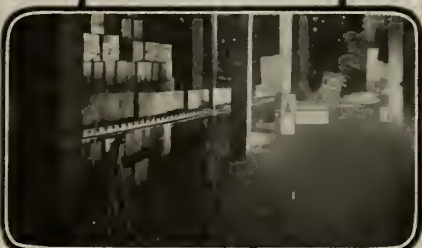
CONVEYING CANNED
GOODS INTO STORAGE



CONVEYORS IN
PACKING ROOM



CONVEYING APPLES
FROM WAGON



CONVEYING CASES
INTO CARS

Don't hire him offhand. Apply the most rigid test, and put him thru a severe examination. Learn what he has accomplished for others—what he can do for you. You will hire him—you will find him 100 per cent efficient—you will never let him go.

He will prove to be the best employe that ever entered your service—a willing, faithful worker—a *dozen men* could not fill his job.

Why Delay—Gravity

will eventually be doing all the hard, laborious work around your plant, and it is to your interest to have this happy event take place as early as possible.

Our illustrated catalog will tell you all about what GRAVITY under the guidance of our *Standard Gravity Conveying Systems* is accomplishing for the canning and packing industry.

WRITE TODAY

Minnesota Manufacturers' Association

Office and Factory: North St. Paul, Minn.

BRANCH OFFICES

39-41 Cortlandt St.....New York City	549 W. Washington St.....Chicago
325 Ellicott Square.....Buffalo	30 Euclid Arcade.....Cleveland
111 E. 10th St., Cincinnati	

Representatives in all Principal Cities

The World

Our Orchard

PRIVATE SALE vs. AUCTION

Experience has demonstrated clearly the manifold advantages of sale by private treaty, which method is now acknowledged on all sides to show more satisfactory results than the auction.

Assuming that you are anxious to dispose of your fruit in the best possible manner and to the best possible advantage we, as **PRIVATE SALESMEN**, have no hesitancy in laying our claim before you.

Whether you prefer to sell your fruit on an outright f.o.b. basis or prefer to have it handled for your own account on a consignment basis, both of which methods are entirely agreeable to us, the fact remains that the firm of

Steinhardt & Kelly

**101 PARK PLACE
NEW YORK**

is in position to give you the best possible service. Our reputation of
“Never Having Turned Down A Car”
although practically 90% of our business is done on an outright purchase basis, is a record of which we feel deservedly proud.

Our Market

The World